



2. The statements contained in my expert report that I authored in this case, dated May 10, 2024, and attached hereto as **Exhibit 1**, including any clarifications provided during my subsequent deposition, are true and accurate.

3. If called to testify at trial in this case, I would testify to the matters set forth in my expert report and elaborated on in my sworn deposition testimony provided in the above-captioned cases. My testimony would be consistent with all of the statements in the report and deposition (and any errata sheet), which included a complete statement of all opinions expressed, the basis and reasons for such opinions, the facts and data considered by me in forming said opinions, discussion about and identification of my qualifications as an expert witness (including any publication I may have authored in the previous 10 years and any cases during the previous 4 years where I may have testified as an expert at trial or by deposition), and a statement of compensation paid to me for study and testimony in this matter.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 13, 2024 within the United States.

*s/ Paul Leitner-Wise*

Paul Leitner-Wise

Declarant

# **EXHIBIT 1**

## **EXPERT WITNESS REPORT OF PAUL LEITNER-WISE**

### **SUBJECT MATTER**

I have been asked to opine on the mechanical differences between semiautomatic-only rifles that are generally available to the American public, such as AR-15 platform rifles, and fully-automatic rifles used by the military, such as M16s.

### **BACKGROUND AND QUALIFICATIONS**

Designer and engineer, with over 20 US Patents and Pending Patents in firearms technology. Formally recognized by the United States Government as a leading expert in the field of firearms design.

### **EDUCATION**

Stafford University UK. 1984  
Bachelor of Science in the field of Industrial Engineering.  
Stafford University UK 1986  
Master of Business Administration.

### **CAREER**

1986-1987 UK Government Contractor

1987-1990 Founded Eclipse Strategic Solutions, a below the line design consultancy. ESS was acquired by publicly traded WPP in 1990.

1990-1994 Joined the International Executive Service Corps. With the dissolution of the Soviet Union, I was responsible for the team auditing the Military industrial Complex of western Russia and the Ukraine.

1994-1996 Two-year contract with the family company Leitner-Wise Kft, in Hungary transitioning the company from state control to private ownership with principal responsibility in the wine production and engineering holdings.

1997-1998 Retained by numerous companies wishing introductions into former communist countries in central and eastern Europe.

1998-2006 Founded Leitner-Wise Rifle Co. (LWRC) to develop new and innovative firearms designs and technologies based around the AR platform. LWRC was acquired by Koniag, a native Alaskan Corporation in 2004. I left in 2006.

2007-2017 Acted as a design and engineering consultant to firearms companies enhancing and developing new and existing products.

2017-to Date Founded Leitner-Wise LLC, the US subsidiary of Leitner-Wise AG, the European holding Company, to develop and market a range of unique Firearms and accessories. Launched the MARKFIVE and entered into a licensing and engineering agreement with VKTR Industries to develop their VK-1 rifle.

## **HISTORY**

It is instructive to look at the development and evolution of fully-automatic “machine” guns, or select-fire weapons, to fully understand the dissimilarity between them and semiautomatic rifles in common civilian ownership. While they often share similar visual appearance, technically and dynamically they are far from similar.

Leaving aside volley guns and hand-cranked rotary guns such as the Gatling gun, which don’t meet the modern definition of an automatic weapon, the advent of smokeless powders as a method of propellant for ammunition brought with it a new method for cycling the weapon, either utilizing the recoil generated by the pressure of the combustion process, or a small portion of the propellant gasses produced to do the same. The ammunition utilized was the larger caliber projectiles fired from the single-shot magazine-fed bolt-action rifles of the period, which were substantially heavier than their modern counterparts. The one exception to this was what became known as sub-machine guns, in that they fired smaller caliber ammunition, generally used in pistols, which, being less powerful, allowed for substantially less weight and the use of an unlocked breach. These were principally developed for close quarter combat and personal defense roles.

The paradigm shift in weapon design occurred in Germany in the late 1930’s, where for mainly economic, strategic, and lack of resource reasons, the development of what became known as the “intermediate cartridge” began. As the name suggests, an intermediate cartridge sits somewhere between the lower power cartridges generally used in pistols and the higher power cartridges used in rifles. The rifle designed to utilize this new cartridge borrowed heavily from other weapon developments of that era in terms of ergonomics and simplified construction. It allowed the operator to use magazines holding more ammunition than the bolt action and common semiautomatic rifles fielded at the time. It was also lighter and shorter than other contemporary weapons, was select-fire, and would have provided a definitive edge in combat, due to its ability to provide each soldier easily-portable automatic fire. However, it arrived too late in the war to affect the outcome (thankfully). While the term “Assault Weapon” is made up, “Assault Rifle” is not. During its development stage, the Germans designated this new weapon the Maschinen Pistole, a term for a sub-machinegun, but upon its adoption they renamed it the “Sturmgewehr”—translated literally as “Assault Rifle.”

Following World War II, development of assault rifles continued; the common and defining traits being an intermediate cartridge, detachable box magazine, and select-fire capability. These became true weapons systems and two of the most successful designs were the AK47 and its derivatives and the M16 family of weapons.

## **TECHNICAL DISCUSSION**

Regulation of civilian machinegun ownership in the United States began in earnest in 1934. Prior to that there were no federal restrictions on automatic firearms, so manufacturers were free to sell select-fire rifles to customers across the country, unless in one of the relatively rare jurisdictions that had a local restriction on them. Following the passage of the National Firearms Act in 1934 and subsequent legislation, firearm manufacturers had to ensure that any semiautomatic firearms they made could not be “readily restored” to select-fire weapons, regardless of whether a separate select-fire version of that weapon existed. To prevent people from simply purchasing the omitted select-fire components and constructing an illegal machinegun, the semiautomatic-only variants were manufactured so that their receivers would not readily accommodate parts necessary for select-fire function. As a result, extensive and precise machining is required to modify those receivers not only to allow such components to be installed at all, but to do so in a way that the converted select-fire weapon would even function reliably.

The commercial AR-15 semiautomatic rifle, for example, has a similar visual appearance to the select-fire M16 family of weapons, yet, it is a far more developed product than the M16. It can be configured to fire many different caliber cartridges, and can be equipped with better triggers, more reliable internal components, and a vast array of accessories that allow the user to tailor the weapon to fit them better; all of which increase the safe and comfortable handling of the firearm. Militaries generally adopt a one-size-fits-all mindset for obvious logistical reasons. The military expects the individual service member to adapt to the weapon provided rather than the other way around. Totally unlike the civilian world where the individual can decide what is most suitable for his or her personal needs.

To illustrate this distinction, the M16 is exclusively chambered for the 5.56x45mm NATO cartridge. Semiautomatic rifles that are available to the general public, including ones that meet the definition of “assault weapon” under Illinois law because they accept detachable magazines and have certain features, come chambered in a variety of ammunition calibers, from as small as rimfire .22LR to much larger, like .300 AAC Blackout and beyond. This allows users to choose a rifle that is best for their intended application: self-defense, target shooting, hunting (small or large game), competition, etc. The upper portion of AR-15 platform rifles can be changed to facilitate various calibers for each of those purposes, depending on the user’s need. The M16 does not have that capability. So while the M16 and AR-15 share features like a detachable box magazine, ergonomics, and sights, they do not share what is most critical to the designation of “Assault Rifle”: select-fire capability.

The following is a general description of the mechanics for semiautomatic rifle function; although different weapons may use slightly different components to achieve the same results. A loaded magazine is placed in the lower receiver portion of the firearm and locked in place. A cartridge is manually loaded into the chamber of the weapon at which point the bolt is automatically locked by mechanical action to safely contain the high pressures that occur when the propellant contained within the cartridge is ignited. Next, the user releases the safety, selects the semiautomatic fire mode, and squeezes the trigger which causes the hammer under spring tension to be released. The hammer strikes the firing pin which in turn strikes the primer of the cartridge, this act of compression causes the volatile material therein to explode, a flame travels through the internal

flash hole in the base of the cartridge and ignites the main charge. The rapid burning of the propellant causes a massive rise in pressure which propels the bullet along the barrel, as the bullet nears the muzzle end, a small portion of gas is bled off from the bore of the barrel through a gas port and into a gas block. This gas in turn acts on the mechanism of the weapon to unlock the bolt from the chamber and start traveling rearward and as it does, withdraw and eject the spent cartridge case, while also re-cocking the firing mechanism for the next round to be fired. At some point the rearward travel of the bolt is arrested by a spring which returns the bolt forward allowing it to pick up a fresh cartridge from the magazine and lock it in the chamber ready to be fired. During this process the hammer has been captured by the disconnector mechanism so regardless of whether the user has released their finger from the trigger or still has it depressed, the weapon will not fire again until the trigger is fully released and depressed a second time.

The process of automatic fire is different in kind. If the firearm is select-fire capable, once the user selects the automatic fire mode and depresses the trigger, the basic initial series of mechanical events highlighted above occur *until* the bolt begins its return stroke. At that point in its travel, the bolt trips a component called the auto sear, which in turn releases the hammer from the disconnector, allowing it to strike the firing pin and repeatedly ignite the cartridges presented. This must happen at exactly the right moment and the bolt must be locked into the chamber, so timing is critical, as is bolt velocity. If all of these intricate machinations work correctly, the weapon will keep firing until the user releases the trigger or the magazine empties of ammunition. Any impediment to that function, even potentially slight ones, will not allow automatic fire.

As mentioned above, weapon manufacturers and the government agency overseeing the firearms industry have agreed to guidelines to help ensure that semiautomatic weapons are not readily convertible to select-fire capable machineguns. This means that while the two versions may appear superficially similar from the outside, internally they are two very different machines. The select-fire variant goes through more manufacturing processes than the semiautomatic variant and while post-production modification of a semiautomatic firearm to a select-fire variant is possible, it is not necessarily desirable or within the capabilities of an average user. A detailed and precise engineering description is not necessary, and I do not wish to publish a guide on how to make a machine gun, but a shortened explanation of the process allows understanding of what needs to be done to demonstrate its complexity. Of course, I'm more than willing to testify in much more detail if and when required.

To make the above-mentioned modifications, the semiautomatic lower receiver must be securely fastened in a specific fixture and mounted to an appropriate machining center and the datum point located. A datum point is a specific point which serves as a reference or base in defining the geometry of the lower receiver and against which all other measurements are made. Once this point is located, the position of material to be machined can be defined and accurately located on the part. The first operation, once the correct cutting tools have been selected, is to remove the material from the lower receiver of the firearm (and in some instances the upper receiver also). Any metal, particularly forged metal, is subjected to stresses under machining, particularly when the material is being removed from a premanufactured product, so detailed knowledge is required as to when to stop the machining process and allow the metal to effectively spring back to its natural shape. Adjustments then must be made, and any movement compensated for. From this point precisely sized and located cuts must be made in accordance with the manufacturing print,

sometimes referred to as the “blueprint” to allow the distinct select-fire components to be fitted. A particular challenge when working with premanufactured product is it will have a protective, permanent surface coating, the thickness of which was accounted for during the original manufacturing process. By necessity, parts of that coating will be removed during the machine work setting up an additional challenge of obtaining precise dimensional accuracy. This entire process assumes that the individual carrying out this work is a skilled machinist, with access to an adequately equipped machine shop, has the necessary production prints, holding fixtures, required cutting tools, and precise measuring equipment. Even at that point, reliable function cannot be guaranteed as for a select-fire weapon to work issues such as timing, mentioned above, and bolt velocity can prevent fully automatic fire. Any professional machinist will confirm that it is easier to make the product from scratch, rather than attempt to re-fixture and remeasure an existing product for modification. This is especially complicated if the correct fixtures are available.

To illustrate the internal differences between the M16 fully-automatic lower receiver and the AR15 semiautomatic lower receiver, I have attached some images taken from the computer program used to manufacture these different components. For ease of comparison, the graphics begin on the following page.

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Fig 1. M16 fully-automatic lower receiver.

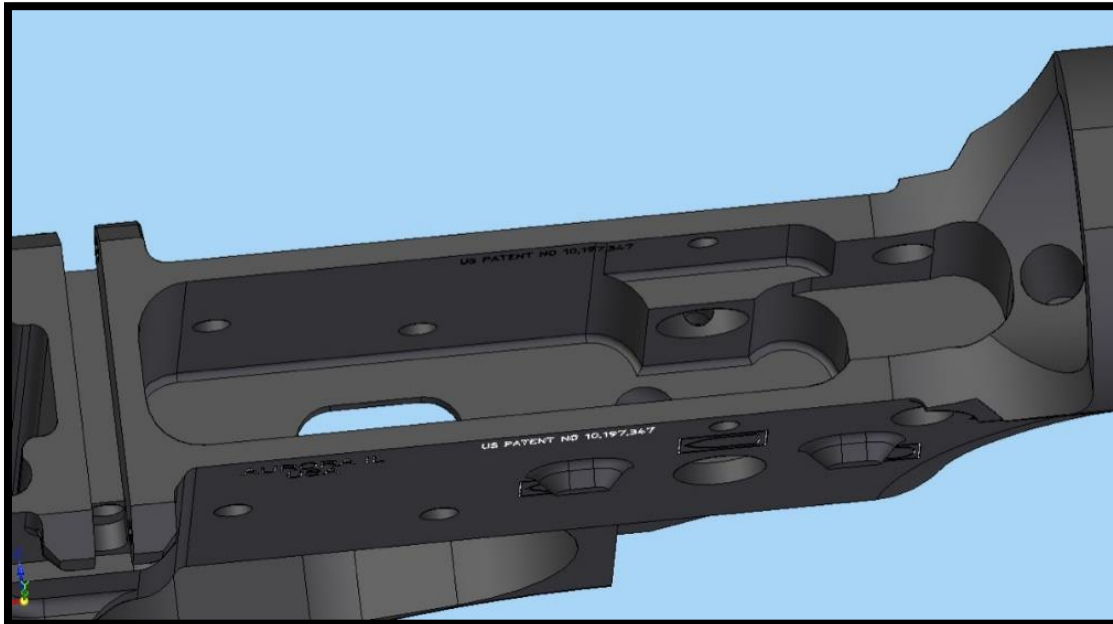


Fig 2. AR15 semiautomatic lower receiver.

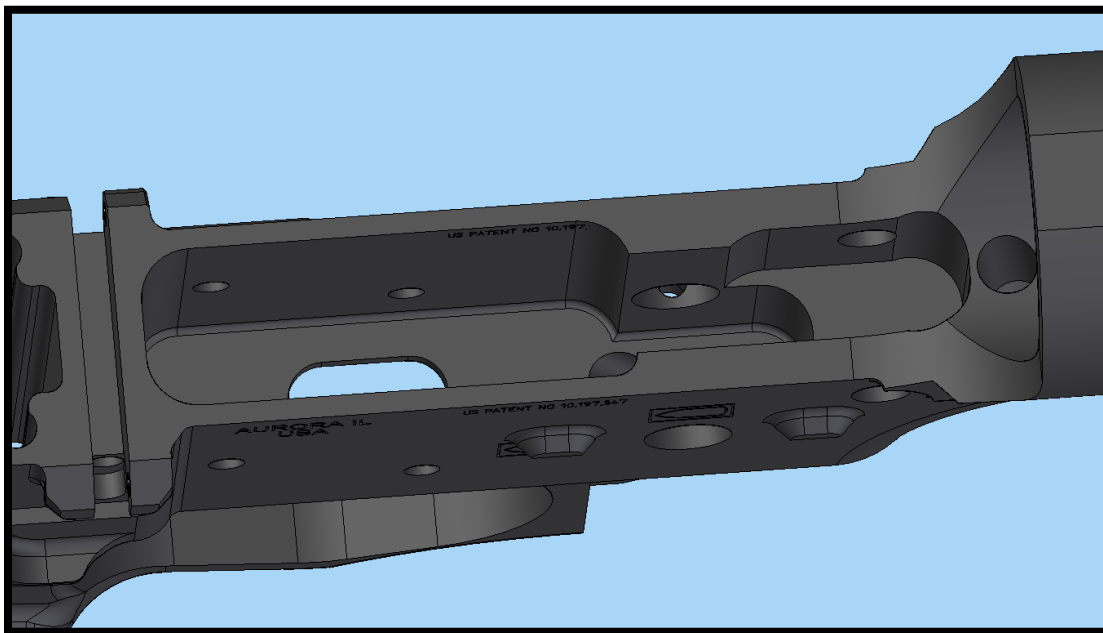


Fig 3. M16 fully-automatic lower receiver.

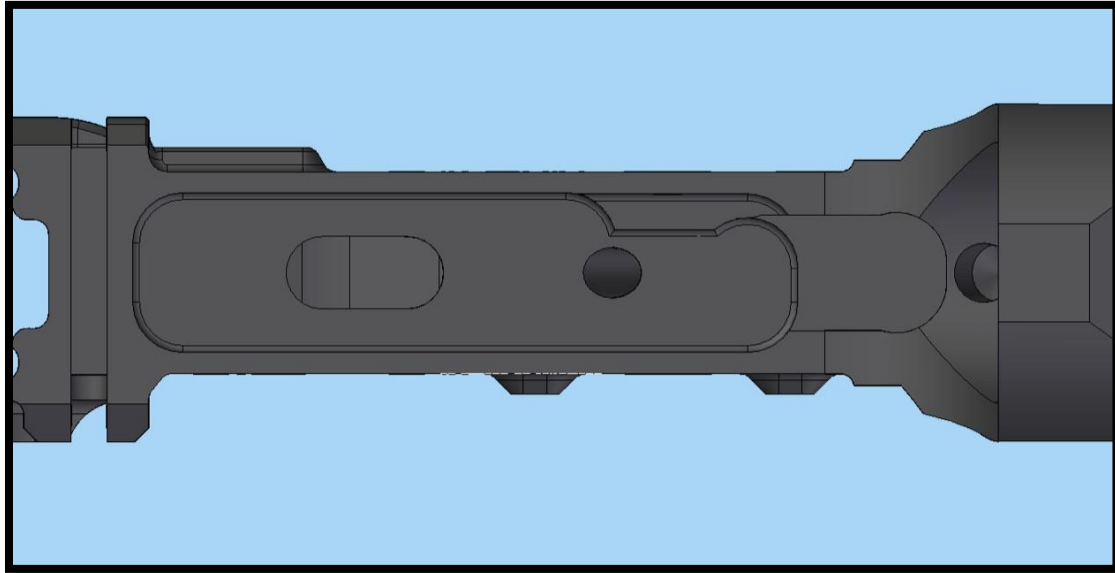


Fig 4. AR15 semiautomatic lower receiver.

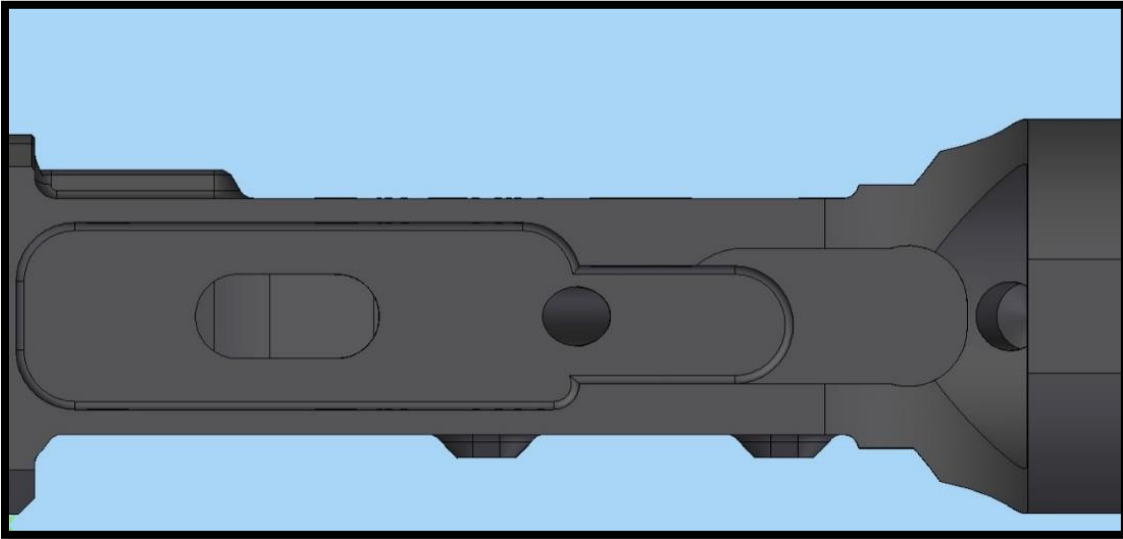


Fig 5. M16 fully-automatic lower receiver.

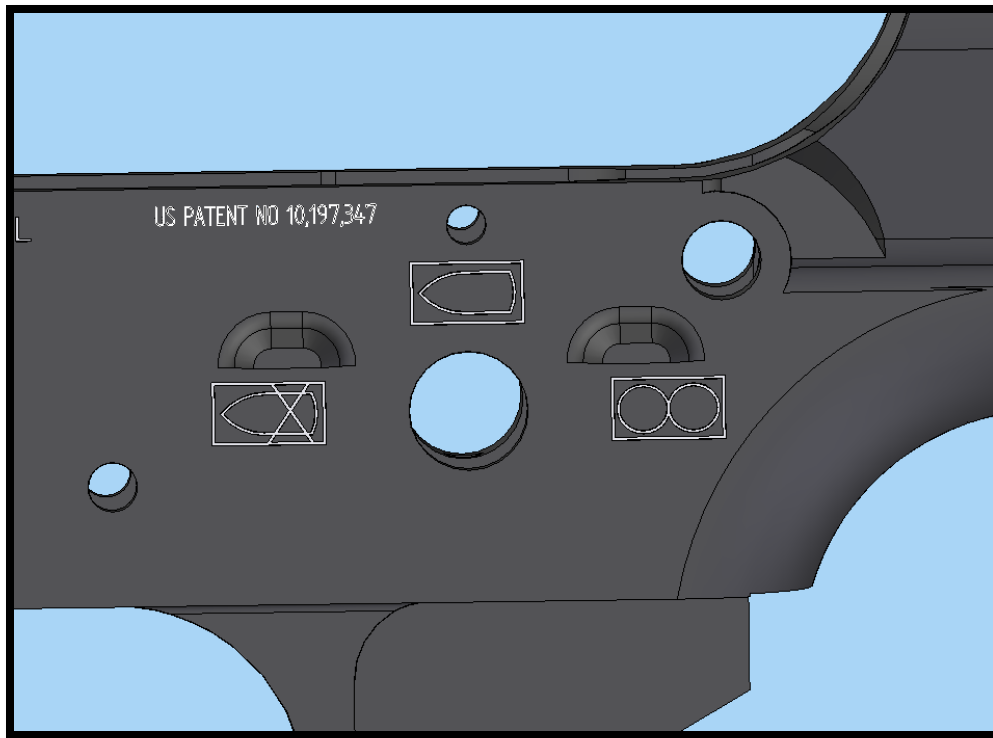
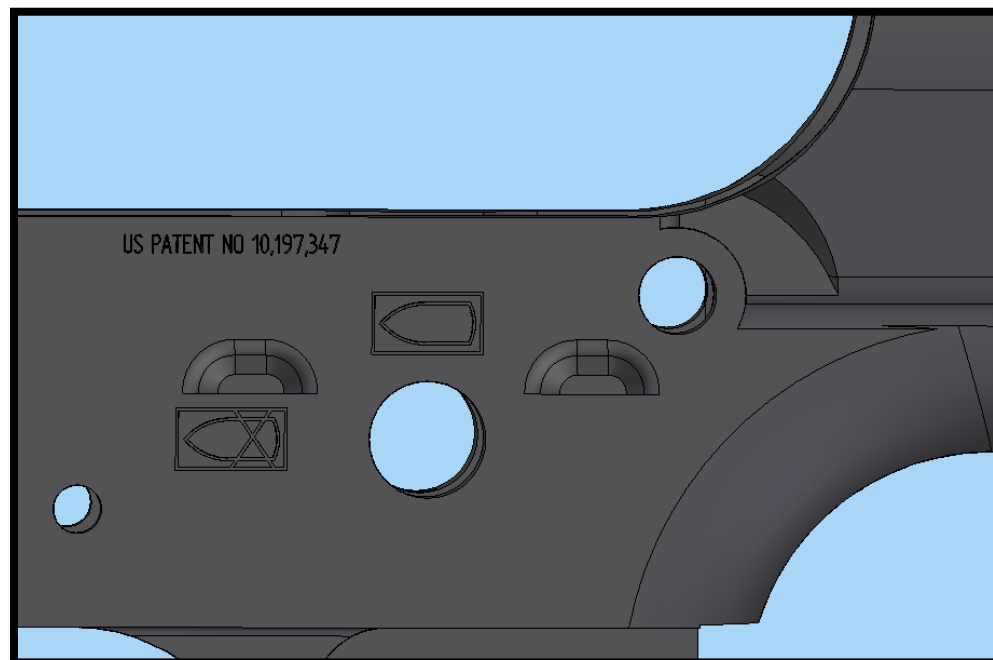


Fig 6. AR15 semiautomatic lower receiver.



It is also my understanding that Illinois restricts as “assault weapons” any semiautomatic rifles that accept detachable magazines and have one or more of the following features:

- i. a pistol grip or thumbhole stock;
- ii. a protruding grip that can be held by the non-trigger hand;
- iii. an adjustable, folding, or detachable stock;
- iv. a flash suppressor; and
- v. a shroud attached to the barrel or that partially or completely encircles the barrel, allowing the bearer to hold the firearm with the non-trigger hand without being burned, but excluding a slide that encloses the barrel.

As a firearm designer with a particular focus on AR-platform rifles, it is my opinion that none of these features is specifically tailored to rifles capable of fully-automatic fire nor for those in military use. Rather, each of these features is designed to facilitate the proper, safe, comfortable, and effective use of certain rifles; particularly rifles based on the AR-15 platform. Anything that improves the safe and effective use of firearms is a good thing.

### **CONCLUSION**

Semiautomatic-only rifles that are properly manufactured in accordance with legal and industry specifications cannot be considered the equivalent of M16s by any metric, as they lack the fundamental internal characteristic of that weapon system, select-fire capability. External similarities that they share, such as pistol grips, flash suppressors, barrel shrouds, and adjustable/removable stocks, and that make no difference in the rifle’s mechanical function, such as rate of fire or capacity of ammunition, only serve to facilitate their comfortable and proper use, which is always a good thing.

All of my opinions are offered to a reasonable degree of engineering and/or mechanical certainty, based on my training and experience described above.

### **COMPENSATION**

I am being compensated at the rate of \$180.00 per hour.

Dated: May 10, 2024

/s/ Paul Leitner-Wise  
Paul Leitner-Wise